Amendments to the Drawings:

The attached sheet of drawings include changes to Figure 1. This sheet, which includes Figures 1 and 2, replaces the original sheet including Figures 1 and 2.

REMARKS

Applicants have received the Office action dated November 7, 2005, that rejects claims 1-23. Claims 1-23 remain pending in this application. Claims 1 and 10 have been amended and will be discussed below.

Objections to the Drawings

The examiner objected to the drawings under 37 CFR 1.83(a) for failing to show the command signal, acoustic transducer and fluid flow.

With respect to the command signal, Fig. 1 shows a communications signal labeled "COMM2", which the specification describes as being suitable for "an exchange of commands (from main board 102), measurement data ... and status information." ¶12ℓ3-5. Moreover, Figs. 3 and 4 show blocks 306 and 410 to represent the sending and receiving of a command signal. For at least this reason, applicants maintain that the drawings adequately illustrate the command signal.

With respect to the acoustic transducer and fluid flow, Fig. 1 has been amended to show acoustic transducers 117 and fluid flow 119, as well as acoustic sensors 121. Support for these amendments can be found in ¶33 and claims 9, 17 and 23. Fig. 1 has been further amended to show an energy barrier 107, as described in ¶11. Applicants submit that the drawings now satisfy 37 CFR 1.83(a).

35 U.S.C. § 112 Rejections

The examiner rejected claims 6, 7, 9, 13 and 23 under 35 U.S.C. § 112 1st paragraph as lacking a written description of a command signal and the programmable logic device fires acoustic transducer and gathers sensor measurements to determine characteristics of fluid flow, in the specification.

Applicant respectfully traverses these rejections and directs the examiner to paragraphs [0028] through [0033] of Applicant's specification. Paragraph [0012] recites in part: "A second communication signal may be an exchange of *commands* (from the main board 102), measurement data (from the remote board 104) and status information

(also from the remote board)". Paragraph [0028] recites in part: "At this time the main board may also provide power to the remote board (block 402) and may send a *command* to switch the remote board into configuration mode". Additionally, paragraph [0029] recites in part: "With the remote board in a normal operating mode, main board 102 transmits one or more *commands* to remote board 104, as indicated by block 306. Remote board 104 waits in block 410 for *commands* from the main board." This language is more than sufficient to satisfy the written description requirement of §112¶1.

With respect to the other limitations, paragraph [0029] recites in part: "While waiting, the remote board may be performing other tasks, e.g., *transducer firing*, *data acquisition* and signal processing." Paragraph [0032] recites in part: "One contemplated use for remote board 104 is in the field *acoustic measurements*, more specifically for measuring the time of flight of a signal." Also, U.S. Patent No. 5,983,730, incorporated by reference, describes a method for measuring the time of flight of a signal and U.S. Patent No. 6,494,105, incorporated by reference, teaches deriving *velocity of a fluid* from the time flight of a signal. Paragraph [0033] recites: "The *PLD 110 may* systematically *trigger the transducers* in a programmable fashion *and gather the resulting sensor data.* Applicant maintains that this language satisfies the written description requirement of §112¶1.

For at least these reasons, applicant submits that claims 6, 7, 9, 13 and 23 are supported by the specification and requests that the examiner withdraw the 35 U.S.C. § 112 rejections.

35 U.S.C. § 102 Rejections

The examiner rejected claims 1-5, 8, 10-16 and 18-22 as anticipated by U.S. Patent No. 6,031,391 ("Couts-Martin"). Applicant respectfully traverses these rejections as they may apply to the pending claims because the cited art fails to teach or suggest every limitation of the claims.

Claim 1 has been amended to include the limitations: "a communications unit that

sends a communication signal via an energy barrier into a hazardous environment". Support for these claim amendments can be found in paragraphs [0010] and [0011]. Claim 10 has similarly been amended to recite "a path for a communication signal from an energy barrier to ... the remote device [in a hazardous environment". Support for these limitations can be found throughout the specification, but more particularly in paragraphs [0010] and [0033] and Figure 1. With respect to independent claims 1 and 10, Couts-Martin fails to teach or suggest the suitability of a multi-purpose communication signal for enhancing safety in a hazardous environment. Thus it is unsurprising that Couts-Martin does not disclose using an energy barrier for sending a communication signal to a programmable logic device as required by these claims. Moreover, Couts-Martin fails to teach or suggest configuring a remote device or programmable logic device in a hazardous environment as required by these claims. For at least these reasons, independent claims 1 and 10, along with their dependent claims 2-9 and 11-17, are allowable over the cited art.

Unamended claim 18 recites in part "a communications link that transports at least one communication signal between the main device [isolated from the hazardous environment] and the remote device [located within the hazardous environment]". The examiner does not cite, and applicants cannot find, any teaching or suggestion of a communications link across a hazardous environment boundary. For at least this reason, independent claim 18 and its dependent claims 19-23 are allowable over the cited art.

Conclusion

In the course of the foregoing discussions, applicant may have at times referred to claim elements in shorthand fashion, or may have focused on a particular claim element. This discussion should not be interpreted to mean that the other elements can be ignored or dismissed. The claims must be viewed as a whole, and each element of the claims must be considered when determining the patentability of the claims. Applicants respectfully request reconsideration and that a timely Notice of Allowance be issued in

this case. It is believed that no extensions of time or fees are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required (including fees for net addition of claims) are hereby authorized to be charged to Conley Rose, P.C. Deposit Account No. 03-2769.

Respectfully submitted,

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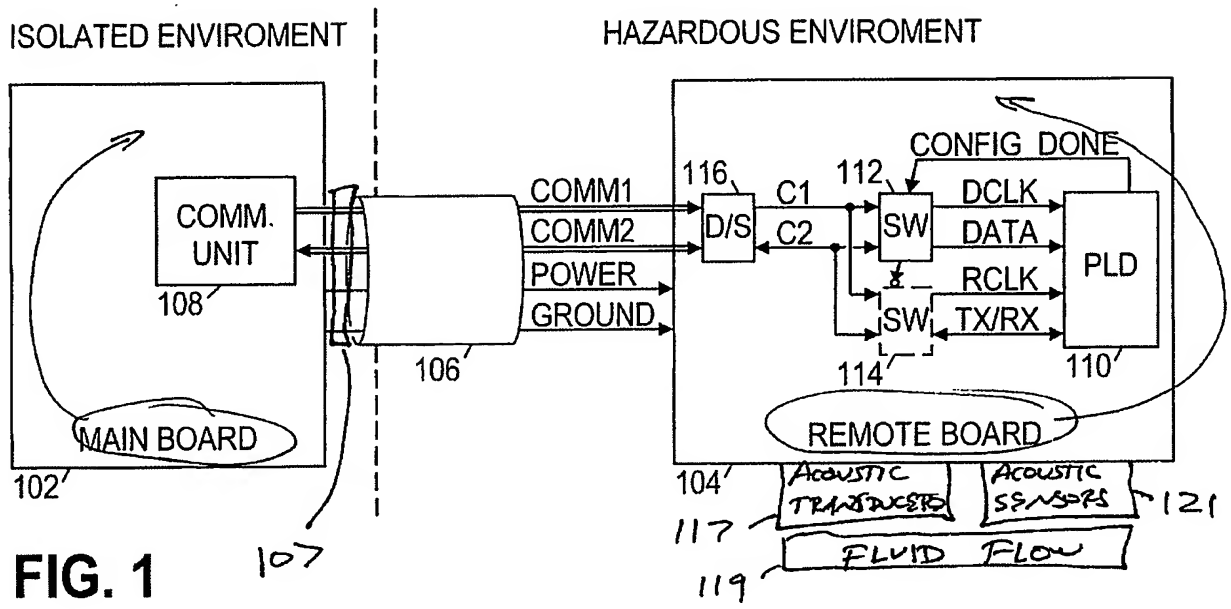

FIG. 1

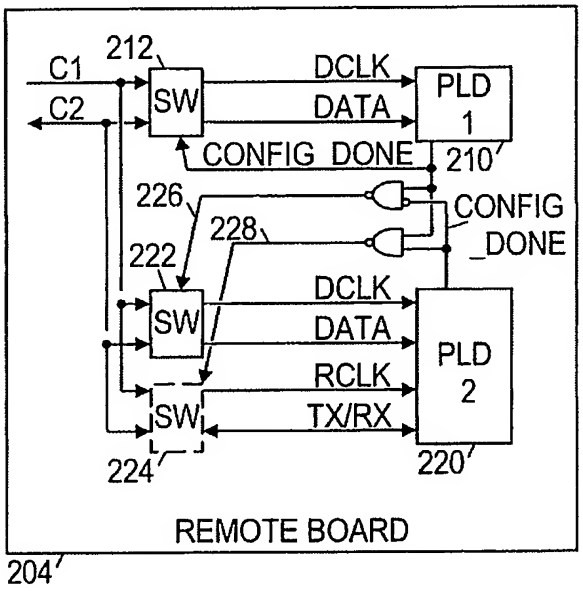

FIG. 2